

We claim:

1. A method of making a plan for circuit synthesis, comprising the steps of:

5 determining a circuit comprising at least one set of circuit elements;
identifying a set of parameters for construction of said circuit elements;
simulating operation of said circuit at a set of points, each point defined
by varying at least one of said parameters;
consolidating results from the simulation operation; and
10 storing the consolidated results of said simulation in a behavioral model
of said plan.

2. The method according to Claim 1, wherein said step of
consolidating comprises the step of placing the results of said simulation in a
tabular form that correlates each of said set of points to a corresponding result
of said simulation.

3. The method according to Claim 1, wherein said step of storing
comprises the steps of:

15 fitting a polynomial equation to results corresponding to at least two of
said set of points; and
20 storing the polynomial equation in a behavioral model of said plan.

4. The method according to any one of Claims 1 to 3, wherein said
circuit elements comprise at least one analog component.

25 5. A method of mixed signal circuit simulation, comprising the steps
of:

selecting a plan for a circuit to be designed;

providing the selected plan and a set of performance requirements to a synthesis engine;

executing the plan; and

retrieving results of the executed plan.

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6. The method according to Claim 5, wherein said results comprise at least one of a sized netlist, a datasheet, and a simulation script for verification of the circuit designed.

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7. A method of behavioral circuit design optimization, comprising the steps of:

determining a circuit comprising at least one set of circuit elements;

identifying a set of parameters for construction of said circuit elements;

simulating operation of said circuit at a set of points, each point defined by varying at least one of said parameters;

fitting a polynomial curve to a result of the circuit simulation at each of said set of points; and

selecting a set of said circuit parameters for an optimized circuit based on said polynomial curve.

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8. The method according to Claim 7, wherein:

said step of simulating comprises the steps of:

setting each of a subset of said parameters to a fixed value;

setting at least one remaining parameter of said set of parameters;

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simulating operation of said circuit to produce a result;

varying said at least one remaining parameter of said set of parameters; and

repeating said steps of varying and simulating for a predetermined number of iterations.

9. The method according to Claim 7, further comprising the steps of:

repeating said steps of simulating and fitting to produce plural data point sets of simulation results; and

wherein said step of selecting comprises the step of selecting an optimized circuit solution from the plural data point sets.

10. An mixed signal synthesizer, comprising:

a synthesis engine configured to determine an optimized circuit and produce a sized netlist based on a plan having a circuit design and parameters for optimizing the circuit.

11. The mixed signal synthesizer according to Claim 10, further comprising:

a synthesis plan library having a set of synthesis plans for at least one circuit, each synthesis plan having a circuit design and a set of parameterized values regarding any of physical characteristics and values of circuit elements; and

a user interface configured to allow a user to select a synthesis plan from the library and input the plan and a set of at least one performance characteristic to said synthesis engine.

12. The mixed signal synthesizer according to Claim 2, wherein each synthesis plan includes at least one of a non-sized netlist, a topology, a synthesis model, a test script, a test harness, a cell definition, a cell model, a starting point table, and a characterization plan for said at least one circuit.

13. The mixed signal synthesizer according to Claim 12, further comprising:

a synthesis toolset having tools selectable for use by said synthesis engine.

14. The mixed signal synthesizer according to Claim 13, wherein said tools comprise at least one of an optimizer, a simulator, a characterizer, and a parasitic calculator.

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